## IN THE CLAIMS

The status of each claim is provided below.

Claims 1-43: Canceled.

- 44. (New)  $7\alpha$ ,  $11\beta$ -dimethyl- $17\beta$ -[[(trans-4-(n-butyl)cyclohexyl)carbonyl]oxy]estr-4-en-3-one.
  - 45. (New) A pharmaceutical composition, comprising:
- a) a pharmaceutically effective amount of  $7\alpha$ ,  $11\beta$ -dimethyl- $17\beta$ -[[(trans-4-(n-butyl)cyclohexyl)carbonyl]oxy]estr-4-en-3-one; and
  - b) a pharmaceutically acceptable carrier.
- 46. (New) The pharmaceutical composition of Claim 45, which is suitable for injection.
- 47. (New) A method of effecting hormonal treatment in a mammal which comprises administering an effective amount of  $7\alpha$ ,  $11\beta$ -dimethyl- $17\beta$ -[[(trans-4-(n-butyl)cyclohexyl)carbonyl]oxy]estr-4-en-3-one to a mammal in need thereof.
  - 48. (New) The method of Claim 47, wherein the mammal is a male.
- 49. (New) The method of Claim 47, wherein the mammal is a male and the hormonal treatment is controlling male fertility.

50. (New) The method of Claim 47, further comprising administering a progestin.

- 51. (New) The method of Claim 47, wherein the method is treating muscle maintenance.
  - 52. (New) A compound of the formula (I):

$$R^{5}_{m_{m_{R}^{2}}}$$
 $R^{5}_{m_{m_{R}^{2}}}$ 
 $(I)$ 

wherein

R<sup>1</sup> is H or lower alkyl;

Y-Z is CH=;

 $R^2$  is an  $\alpha$ -substituent which is unsubstituted lower alkyl;

R<sup>3</sup> is (CO)-R<sup>4</sup>, wherein R<sup>4</sup> is C<sub>10</sub> alkyl;

 $R^5$  is  $\alpha$ -H, and  $R^6$  is  $\beta$ -lower alkyl; and

X is O.

53. (New) The compound of Claim 52, wherein

R1 is H;

R<sup>2</sup> is methyl; and

R<sup>6</sup> is methyl.

- 54. (New) A pharmaceutical composition, comprising:
- a) the compound of Claim 52; and
- b) a pharmaceutically acceptable carrier.
- 55. (New) A pharmaceutical composition, comprising:
- a) the compound of Claim 53; and
- b) a pharmaceutically acceptable carrier.
- 56. (New) The pharmaceutical composition of Claim 54, which is suitable for injection.
- 57. (New) The pharmaceutical composition of Claim 55, which is suitable for injection.
- 58. (New) A method of effecting hormonal treatment in a mammal which comprises administering an effective amount of the compound of Claim 52 to a mammal in need thereof.
- 59. (New) A method of effecting hormonal treatment in a mammal which comprises administering an effective amount of the compound of Claim 53 to a mammal in need thereof.
  - 60. (New) The method of Claim 58, wherein the mammal is a male.
  - 61. (New) The method of Claim 59, wherein the mammal is a male.

62. (New) The method of Claim 58, wherein the mammal is a male and the hormonal treatment is controlling male fertility.

- 63. (New) The method of Claim 59, wherein the mammal is a male and the hormonal treatment is controlling male fertility.
  - 64. (New) The method of Claim 58, further comprising administering a progestin.
  - 65. (New) The method of Claim 59, further comprising administering a progestin.
- 66. (New) The method of Claim 58, wherein the method is treating muscle maintenance.
- 67. (New) The method of Claim 59, wherein the method is treating muscle maintenance.
  - 68. (New) A method of making a compound of the formula (I):

$$R^{5}_{n_{1}n_{1}}$$
 $R^{6}$ 
 $R^{5}_{n_{1}n_{1}}$ 
 $R^{1}$ 
 $R^{1}$ 
 $R^{2}$ 
 $R^{3}$ 
 $R^{5}_{n_{1}n_{1}}$ 
 $R^{1}$ 
 $R^{2}$ 

wherein

R<sup>1</sup> is H or lower alkyl;

Y-Z is CH= or CH<sub>2</sub>-CH, wherein H is  $\alpha$  to the rings; or Y-CH, wherein H is  $\alpha$  to the rings and Y is S, O, or NR<sup>10</sup>, wherein R<sup>10</sup> is H or lower alkyl;

 $R^2$  is an  $\alpha$ -substituent which is unsubstituted lower alkyl or fluoro-substituted lower alkyl;

 $R^3$  is  $C_1$ - $C_8$  alkyl, or  $C_2$ - $C_8$  alkenyl or alkynyl which are optionally substituted; or  $R^3$  is  $C_4$ - $C_8$  cycloalkyl which is unsubstituted or substituted; or  $R^3$  is  $C_6$ - $C_{18}$  aryl which is unsubstituted or substituted; or  $R^3$  is a 5- to 15-membered heterocycle which is unsubstituted or substituted, and further wherein any of the above may be further substituted with 1 to 3 heteroatoms or 1 to 5 halogen atoms or both; or

 $R^3$  is H or acyl group (CO)- $R^4$ , wherein  $R^4$  is  $C_1$ - $C_{18}$  alkyl, or  $C_2$ - $C_{18}$  alkenyl or  $C_2$ - $C_{18}$  alkynyl which are optionally substituted; or  $R^4$  is  $C_4$ - $C_{18}$  cycloalkyl or substituted cycloalkyl; or  $R^4$  is  $C_6$ - $C_{18}$  aryl or substituted aryl; or  $R^4$  is a 5- to 15-membered heterocycle or substituted heterocycle, and wherein  $R^4$  may be optionally substituted with 1 to 3 heteroatoms or 1 to 5 halogen atoms or both;

 $R^5$  is  $\alpha$ -H, and  $R^6$  is  $\beta$ -lower alkyl, alkenyl or alkynyl which are optionally substituted, or  $R^5R^6$  is =CH<sub>2</sub>; and

X is O, H<sub>2</sub>, (H, OH) or (H, OCOR<sup>4</sup>), wherein R<sup>4</sup> is as defined above; or X is (H, OR<sup>3</sup>), wherein R<sup>3</sup> is as defined above; or X is NOR<sup>7</sup>, wherein R<sup>7</sup> is H or C<sub>1</sub>-C<sub>8</sub> alkyl, or C<sub>2</sub>-C<sub>8</sub> alkenyl or alkynyl which are optionally substituted; or R<sup>7</sup> is C<sub>4</sub>-C<sub>8</sub> cycloalkyl which is unsubstituted or substituted; or R<sup>7</sup> is C<sub>6</sub>-C<sub>18</sub> aryl or substituted aryl; or R<sup>7</sup> is a 5- to 15-membered heterocycle which is unsubstituted or substituted, and R<sup>7</sup> may be optionally substituted with 1 to 3 heteroatoms or 1 to 5 halogen atoms or both; or X is (OR<sup>8</sup>, OR<sup>9</sup>), where R<sup>8</sup> and R<sup>9</sup> are lower alkyl, or (OR<sup>8</sup>, OR<sup>9</sup>) is a cyclic structure containing 2 to 3 carbon atoms, optionally substituted with lower alkyl, or 1 or 2 heteroatoms or halogens;

which comprises:

a) introducing a 6,7-double bond into adrenosterone;

b) effecting 1,6-addition of a methyl group by reaction with an organometallic reagent, followed by acid treatment;

- c) introducing a 1,2-double bond;
- d) protecting the 17-ketone functionality;
- e) reducing the 11-ketone group to an 11-hydroxy group;
- f) aromatizing the A-ring to a phenol;
- g) alkylating the phenol ring to an alkoxy arene compound;
- h) oxidizing the 11-hydroxyl to an 11-ketone;
- i) converting the 11-ketone to 11-methylene;
- j) removing the protecting group at C-17 to yield the ketone;
- k) reducing the 11-methylene to  $11\beta$ -methyl;
- 1) reducing the 17-ketone to  $17\beta$ -hydroxyl; and
- m) converting the 3-alkoxy arene to a 4-en-3-one compound.

Claim 69 (New): The method of Claim 68, wherein step a) is effected by an electronegatively-substituted quinone.

Claim 70 (New): The method of Claim 68, wherein step b) is effected by a methyllithium copper complex.

Claim 71 (New): The method of Claim 68, wherein step c) is effected by an electronegatively-substituted quinone.

Claim 72 (New): The method of Claim 68, wherein step d) is effected by ketal formation with a 1,2- or 1,3-diol.

Claim 73 (New): The method of Claim 68, wherein step e) is effected by a complex metal hydride reagent.

Claim 74 (New): The method of Claim 68, wherein step f) is effected by a metal/arene mixture.

Claim 75 (New): The method of Claim 68, wherein step g) is effected by either an alkyl halide or an activated alkyl ester in the presence of a base.

Claim 76 (New): The method of Claim 68, wherein step h) is effected by a chromium oxidant.

Claim 77 (New): The method of Claim 68, wherein step i) and j) are effected by a trialkyl silylmethyl organometallic reagent followed by treatment with an acid.

Claim 78 (New): The method of Claim 68, wherein step k) is effected by metal-catalyzed hydrogenation.

Claim 79 (New): The method of Claim 68, wherein step l) is effected by a complex metal hydride reagent.

Claim 80 (New): The method of Claim 68, wherein step m) is effected by a dissolving metal in an amine solvent followed by acid treatment.

Claim 81 (New) A method of making a compound of the formula (I):

$$R^{5}_{n_{1}n_{1}}$$
 $R^{1}$ 
 $R^{1}$ 
 $R^{2}$ 
 $R^{3}$ 
 $R^{5}_{n_{1}n_{1}}$ 
 $R^{2}$ 
 $R^{5}_{n_{2}n_{3}}$ 
 $R^{5}_{n_{3}n_{4}}$ 
 $R^{5}_{n_{4}n_{5}}$ 
 $R^{5}_{n_{5}n_{5}}$ 
 $R^{5}_{n_{5}n_{5}}$ 

wherein

R<sup>1</sup> is H or lower alkyl;

Y-Z is CH= or CH<sub>2</sub>-CH, wherein H is  $\alpha$  to the rings; or Y-CH, wherein H is  $\alpha$  to the rings and Y is S, O, or NR<sup>10</sup>, wherein R<sup>10</sup> is H or lower alkyl;

 $R^2$  is an  $\alpha$ -substituent which is unsubstituted lower alkyl or fluoro-substituted lower alkyl;

 $R^3$  is  $C_1$ - $C_8$  alkyl, or  $C_2$ - $C_8$  alkenyl or alkynyl which are optionally substituted; or  $R^3$  is  $C_4$ - $C_8$  cycloalkyl which is unsubstituted or substituted; or  $R^3$  is  $C_6$ - $C_{18}$  aryl which is unsubstituted or substituted; or  $R^3$  is a 5- to 15-membered heterocycle which is unsubstituted or substituted, and further wherein any of the above may be further substituted with 1 to 3 heteroatoms or 1 to 5 halogen atoms or both; or

 $R^3$  is H or acyl group (CO)- $R^4$ , wherein  $R^4$  is  $C_1$ - $C_{18}$  alkyl, or  $C_2$ - $C_{18}$  alkenyl or  $C_2$ - $C_{18}$  alkynyl which are optionally substituted; or  $R^4$  is  $C_4$ - $C_{18}$  cycloalkyl or substituted cycloalkyl; or  $R^4$  is  $C_6$ - $C_{18}$  aryl or substituted aryl; or  $R^4$  is a 5- to 15-membered heterocycle or

substituted heterocycle, and wherein R<sup>4</sup> may be optionally substituted with 1 to 3 heteroatoms or 1 to 5 halogen atoms or both;

 $R^5$  is  $\alpha$ -H, and  $R^6$  is  $\beta$ -lower alkyl, alkenyl or alkynyl which are optionally substituted, or  $R^5R^6$  is =CH<sub>2</sub>; and

X is O,  $H_2$ , (H, OH) or  $(H, OCOR^4)$ , wherein  $R^4$  is as defined above; or X is  $(H, OR^3)$ , wherein  $R^3$  is as defined above; or X is  $NOR^7$ , wherein  $R^7$  is H or  $C_1$ - $C_8$  alkyl, or  $C_2$ - $C_8$  alkenyl or alkynyl which are optionally substituted; or  $R^7$  is  $C_4$ - $C_8$  cycloalkyl which is unsubstituted or substituted or substituted aryl; or  $R^7$  is a 5- to 15-membered heterocycle which is unsubstituted or substituted, and  $R^7$  may be optionally substituted with 1 to 3 heteroatoms or 1 to 5 halogen atoms or both; or X is  $(OR^8, OR^9)$ , where  $R^8$  and  $R^9$  are lower alkyl, or  $(OR^8, OR^9)$  is a cyclic structure containing 2 to 3 carbon atoms, optionally substituted with lower alkyl, or 1 or 2 heteroatoms or halogens,

which consists essentially of introducing the  $7\alpha$ -substituent prior to introducing the  $11\beta$ -substituent.

Claim 82 (New): A method of making  $7\alpha$ ,  $11\beta$ -dimethyl- $17\beta$ -[[(trans-4-(n-butyl)cyclohexyl)carbonyl]oxy]estr-4-en-3-one, which consists essentially of introducing the  $7\alpha$ -methyl substituent prior to introducing the  $11\beta$ -methyl substituent.

Claim 83 (New): A method of making the compound of Claim 52, which consists essentially of introducing the  $7\alpha$ -substituent prior to introducing the  $11\beta$ -substituent.

Claim 84 (New): A method of making the compound of Claim 53, which consists essentially of introducing the  $7\alpha$ -methyl substituent prior to introducing the  $11\beta$ -methyl substituent.

## SUPPORT FOR THE AMENDMENTS

The specification has been amended to insert continuing application data. Newly-added Claims 44-84 are supported by the specification at pages 2-35 and original Claims 1-43. In Claim 52, the definition of  $R^4$  as  $C_{10}$  alkyl is supported by the specification at page 3, line 11. The range of  $C_1$ - $C_{18}$  alkyl provides descriptive support for  $C_{10}$  alkyl.

No new matter is believed to have been added to this application by the amendments submitted above.